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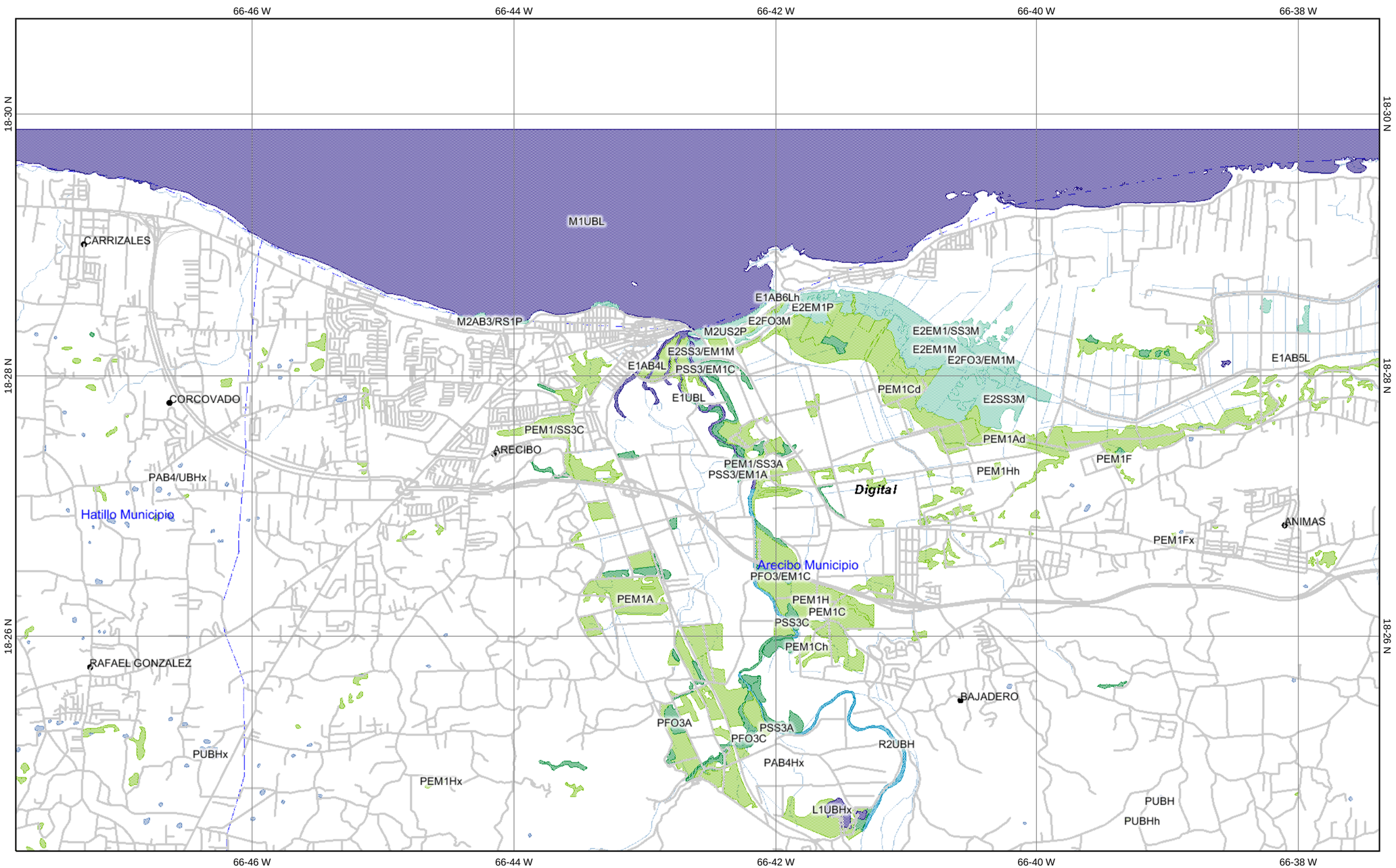
Appendix A

National Wetlands Inventory Map

NWI Wetlands



Legend

Major Roads

- Other Road
- Interstate
- State highway
- US highway

Roads

PRVI Cities

PRVI Wetland Polygons

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

PRVI Available Wetland Data

- Non-Digital
- Digital
- No Data
- Scan

Waterbodies 2M

Streams 2M

PRVI Counties 2M

Map center: 18° 27' 33" N, 66° 42' 36" W

Scale: 1:57,155

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

WETLANDS AND DEEPWATER HABITATS CLASSIFICATION

System	M - Marine							
Subsystem	1 - Subtidal				2 - Intertidal			
Class	RB – Rock Bottom	UB – Unconsolidated Bottom	AB – Aquatic Bed	RF – Reef	AB – Aquatic Bed	RF – Reef	RS – Rocky Shore	US – Unconsolidated Shore
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud	1 Algal 3 Rooted Vascular	1 Coral 3 Worm	1 Algal 3 Rooted Vascular	1 Coral 3 Worm	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic

System	E - Estuarine											
Subsystem	1 - Subtidal				2 - Intertidal							
Class	RB – Rock Bottom	UB – Unconsolidated Bottom	AB – Aquatic Bed	RF – Reef	AB – Aquatic Bed	RF – Reef	SB – Streambed	RS – Rocky Shore	US – Unconsolidated Shore	EM – Emergent	SS – Scrub-Shrub	FO – Forested
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Algal 3 Rooted Vascular 4 Floating Vascular	2 Mollusk 3 Worm	1 Algal 3 Rooted Vascular 4 Floating Vascular	2 Mollusk 3 Worm	1 Bedrock 2 Rubble 3 Cobble-Gravel 4 Sand 5 Mud 6 Organic	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Persistent 2 Non-persistent 5 *Phragmites australis*	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen

System	R - Riverine				
Subsystem	1 - Tidal	2 – Lower Perennial	3 – Upper Perennial	4* - Intermittent	5** – Unknown Perennial

Class	RB – Rock Bottom	UB – Unconsolidated Bottom	SB*** – Streambed	AB – Aquatic Bed	RS – Rocky Shore	US – Unconsolidated Shore	EM – Emergent
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Bedrock 2 Rubble 3 Cobble-Gravel 4 Sand 5 Mud 6 Organic 7 Vegetated	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated	2 Nonpersistent

* **Intermittent** is limited to the **Streambed** Class
** **Unknown Perennial** is limited to **Unconsolidated Bottom**
*** **Streambed** is limited to **Tidal** and **Intermittent** Subsystems

Classification of Wetlands and Deepwater Habitats of the United States, Cowardin *et al*. 1979

WETLANDS AND DEEPWATER HABITATS CLASSIFICATION

System: L - Lacustrine

Subsystem: 1 - Limnetic

Class	Subclass
RB – Rock Bottom	1 Bedrock 2 Rubble
UB – Unconsolidated Bottom	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic
AB – Aquatic Bed	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular

Subsystem: 2 - Littoral

Class	Subclass
RB – Rock Bottom	1 Bedrock 2 Rubble
UB – Unconsolidated Bottom	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic
AB – Aquatic Bed	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular
RS – Rocky Shore	1 Bedrock 2 Rubble
US – Unconsolidated Shore	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated
EM – Emergent	2 Nonpersistent

System: P - Palustrine

Class	Subclass
RB – Rock Bottom	1 Bedrock 2 Rubble
UB – Unconsolidated Bottom	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic
AB – Aquatic Bed	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular
US – Unconsolidated Shore	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated
ML – Moss-Lichen	1 Moss 2 Lichen
EM – Emergent	1 Persistent 2 Nonpersistent 5 *Phragmites australis*
SS – Scrub-Shrub	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen
FO – Forested	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen

MODIFIERS

In order to more adequately describe the wetland and deepwater habitats, one or more of the water regime, water chemistry, soil, or special modifiers may be applied at the class or lower level in the hierarchy. The farmed modifier may also be applied to the ecological system.

Water Regime			Special Modifiers	Water Chemistry			Soil
Nontidal	**Saltwater Tidal**	**Freshwater Tidal**		**Coastal Halinity**	**Inland Salinity**	**pH Modifiers for all Fresh Water**	
A Temporarily Flooded	L Subtidal	S Temporarily Flooded-Tidal	b Beaver	1 Hyperhaline	7 Hypersaline	a Acid	g Organic
B Saturated	M Irregularly Exposed	R Seasonally Flooded-Tidal	d Partly Drained/Ditched	2 Euhaline	8 Eusaline	t Circumneutral	n Mineral
C Seasonally Flooded	N Regularly Flooded	T Semipermanently Flooded-Tidal	f Farmed	3 Mixohaline (Brackish)	9 Mixosaline	l Alkaline	
E Seasonally Flooded/ Saturated	P Irregularly Flooded	V Permanently Flooded-Tidal	h Diked/Impounded	4 Polyhaline	0 Fresh		
F Semipermanently Flooded			r Artificial	5 Mesohaline			
G Intermittently Exposed			s Spoil	6 Oligohaline			
H Permanently Flooded			x Excavated	0 Fresh			
J Intermittently Flooded							
K Artificially Flooded							

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Appendix B

DNER Threatened and Endangered Species

Table B-1
Threatened or Endangered Species within a 10-Kilometer Radius of
Energy Answers' Proposed Resource Recovery Facility
Arecibo, Puerto Rico

Elementos Críticos a un radio de 10 km del predio [Critical elements within a 10 km radius]				
Nombre Científico	**Nombre Común**	**Nombre Científico**	**Nombre Común (Inglés)**	**Nombre-Categoría**
Pisonia aculeata (*helleri*)	Escambron	*Pisonia aculeata (helleri)*	Prickly Manpoo	Vascular Plant
Enallagma (*Amphitecna*) *latifolia*	Higüerillo	Enallagma (*Amphitecna*) *latifolia*	Black-calabash	Vascular Plant
Maytenus ponceana	Cuero de Sapo	*Maytenus ponceana*	Cuero de Sapo	Vascular Plant
Bletia patula var. *alba*	Bletia Blanca	*Bletia patula var. alba*	White Bletia	Vascular Plant
Falco peregrinus	Falcon Peregrino	*Falco peregrinus*	Peregrine Falcon	Vertebrate Animal
Hyperbaena domingensis	Un Bejuco Lenoso o Arbol Peque	*Hyperbaena domingensis*	Forest snakevine	Vascular Plant
Trichechus manatus manatus	Manati	*Trichechus manatus*	West Indian Manatee	Vertebrate Animal
Dermochelys coriacea	Tinglar	*Dermochelys coriacea*	Leatherback Sea Turtle	Vertebrate Animal
Anolis occultus	Lagartijo Enano	*Anolis occultus*	Puerto Rican Pygmy Anole	Vertebrate Animal
Tadarida brasiliensis antillarum	Murcielago de Cola Libre	*Tadarida brasiliensis*	Brazilian Free-tailed Bat	Vertebrate Animal
Enallagma (*Amphitecna*) *latifolia*	Higüerillo	Enallagma (*Amphitecna*) *latifolia*	Black-calabash	Vascular Plant
Polygala cowellii	Arbol de Violeta	*Polygala cowellii*	Violet Tree	Vascular Plant
Mappia racemosa	Palo de Cana	*Mappia racemosa*	Palo de Cana	Vascular Plant
Oxyura jamaicensis	Pato Chorizo	*Oxyura jamaicensis*	Ruddy Duck	Vertebrate Animal
Diploglossus pleei	Culebra de Cuatro Patas	*Diploglossus pleei*	Puerto Rican Galliwasp	Vertebrate Animal
Nymphaea ampla	Calderon	*Nymphaea ampla*	Water Lilly	Vascular Plant
Drypetes lateriflora	Cueriduro	*Drypetes lateriflora*	Guinea-plum	Vascular Plant
Eugenia stewardsonii	Hoja Menuda	*Eugenia stewardsonii*	Stewardson's Eugenia	Vascular Plant
Epicrates inornatus	Boa de Puerto Rico	*Epicrates inornatus*	Puerto Rico Boa	Vertebrate Animal
Tadarida brasiliensis antillarum	Murcielago Viejo	*Tadarida brasiliensis*	Brazilian Free-tailed Bat	Vertebrate Animal
Oxyura dominica	Pato Dominico	*Oxyura dominica*	Masked Duck	Vertebrate Animal
Govenia utriculata	Una OrquideaTerrestre	*Govenia utriculata*	Tropical Govenia	Vascular Plant
Fulica caribaea	Gallinazo Caribeño	*Fulica caribaea*	Caribbean Coot	Vertebrate Animal
Dendrocygna arborea	Chiriria Caribeña	*Dendrocygna arborea*	West Indian Whistling-duck	Vertebrate Animal
Manilkara pleeana	Ausuba	*Manilkara pleeana*	Zapote de Costa	Vascular Plant
Epidendrum oncidioides	Orquídea	*Epidendrum oncidioides*	an Orchid	Vascular Plant
Drypetes ilicifolia	Encinillo	*Drypetes ilicifolia*	Encinillo	Vascular Plant
Fulica caribaea	Gallinazo Nativo	*Fulica caribaea*	Caribbean Coot	Vertebrate Animal
Passiflora murucuja	Parchita	*Passiflora murucuja*	Virgin Island's Passion-flower	Vascular Plant
Maytenus ponceana	Cuero de Sapo	*Maytenus ponceana*	Cuero de Sapo	Vascular Plant
Myrcia paganii	Ausu	*Myrcia paganii*	Ausu	Vascular Plant
Cynometra portoricensis	Oreganillo	*Cynometra portoricensis*	Oreganillo	Vascular Plant
Marsilea polycarpa	Un Helecho Acuatico	*Marsilea polycarpa*	Guayanan Waterclover	Vascular Plant
Nymphaea ampla	Calderon	*Nymphaea ampla*	Water Lilly	Vascular Plant
Diospyros sintenisii	Guayabota	*Diospyros sintenisii*	Guayabota	Vascular Plant
Epicrates inornatus	Boa de Puerto Rico	*Epicrates inornatus*	Puerto Rican Boa	Vertebrate Animal
Stenoderma rufum darioi	Murcielago Rojo Frutero	*Stenoderma rufum*	Desmarest's Fig-eating Bat	Vertebrate Animal
Guatteria caribaea	Haya Blanca	*Guatteria caribaea*	Haya Blanca	Vascular Plant
Sabal causiarum	Palma de Sombrero	*Sabal causiarum*	Puerto Rican Hat-palm	Vascular Plant
Nymphaea amazonum	Yerba de Hicotea	*Nymphaea amazonum*	Amazon Water-lily	Vascular Plant
Tachybaptus dominicus	Tigua	*Tachybaptus dominicus*	Least Grebe	Vertebrate Animal

Threatened or Endangered

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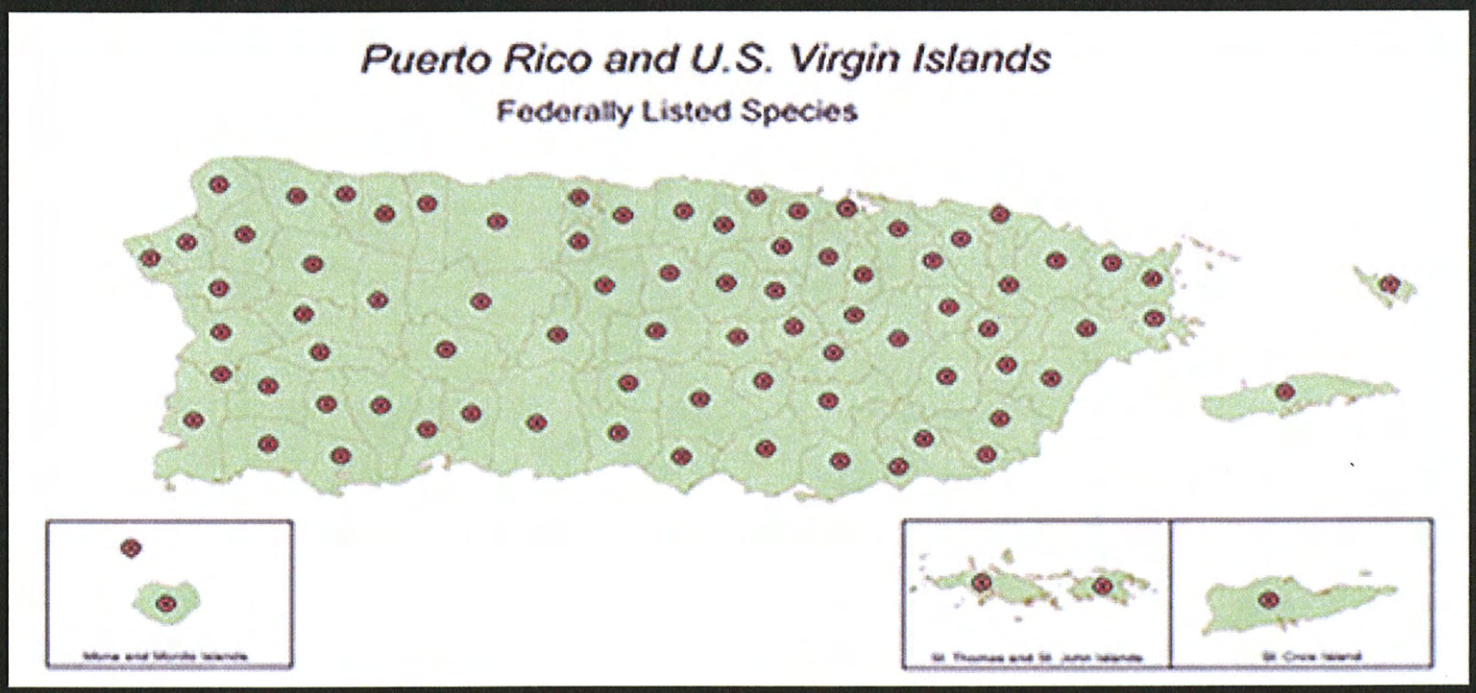
Appendix C

USFWS Caribbean Endangered Species Map for Puerto Rico

U.S. Fish & Wildlife Service

Caribbean Endangered Species Map

Mapa de Especies Caribeñas en Peligro de Extinción



Carey

Coquí guajón

Higuero de Sierra

Palometas

U.S.Fish & Wildlife Service

Ecological Services in the Caribbean

DISCLAMER: The Endangered Species Map is provided as a tool for developers, consultants, land management agencies, resource agency staff and the general public as a quick reference for the evaluation of possible effects that may result from development projects. The information provided in this map identifies general areas where the species may be located. The information does not represent the absolute distribution of a particular species. The map and table were developed with the best information available to the Service, but additional sightings of the species may occur. If the project is located within the currently known distribution of a species, additional information may be required to determine the presence of suitable habitat within the project area, and in some cases, specialized surveys may be required to determine presence/absence of the species.

Continue to Map

Last Revised: 2007

ARECIBO (1-2)

SCIENTIFIC NAME	COMMON NAME	COMMON NAME SPANISH	GROUP	STATUS	DISTRIBUTION
Accipiter striatus venator	Puerto Rican Sharp-Shinned Hawk	Falcon de Sierra	Bird	E	Rio Abajo State Forest
Amazona vittata vittata	Puerto Rican Parrot	Cotorra Puertorriqueña	Bird	E	Rio Abajo State Forest
Auerodendron pauciflorum	No Common Name	No Tiene Nombre Comun	Plant	E	Rio Abajo State Forest
Buteo platypterus brunnescens	Puerto Rican Broad-winged Hawk	Guaraguao de Bosque	Bird	E	Rio Abajo State Forest
Calyptronoma rivalis	No Common Name	Palma de Manaca	Plant	T	Rio Abajo State Forest
Chelonia mydas	Green Sea Turtle	Peje Blanco	Reptile	T, CH	Coastal Zones
Cordia bellonis	No Common Name	No Tiene Nombre Comun	Plant	E	Rio Abajo State Forest
Cornutia obovata	No Common Name	Palo de Nigua	Plant	E	Rio Abajo State Forest, Near Arecibo Observatory
Dermochelys coriacea	Leatherback Sea Turtle	Tinglar	Reptile	E, CH	Coastal Zones
Epicrates inornatus	Puerto Rican Boa	Boa Puertorriqueña	Reptile	E	Forested Volcanic and Limestone (Karst) Hills
Eretmochelys imbricata	Hawksbill Sea Turtle	Carey	Reptile	E, CH	Coastal Zones
Goetzea elegans	Beautiful Goetzea	Matabuey	Plant	E	Cambalache State Forest

Continues on Next Page

Status
E=Endangered
T=Threatened
CH=Critical Habitat

BACK CONTINUE

ARECIBO (2-2)

SCIENTIFIC NAME	COMMON NAME	COMMON NAME SPANISH	GROUP	STATUS	DISTRIBUTION
Myrcia paganii	No Common Name	No Tiene Nombre Comun	Plant	E	Biafara Arrozal
Ottoschulzia rhodoxylon	No Common Name	Palo de Rosa	Plant	T	Cambalache State Forest, Sabana Hoyos
Pelecanus occidentalis	Brown Pelican	Pelicano Pardo	Bird	E	Coastal Zones, Inland Waterbodies, No Nesting
Peltophryne lemur	Puerto Rican Crested Toad	Sapo Concho	Amphibian	T	Northern Karst Regions
Pleodendron macranthum	No Common Name	Chupacallos	Plant	E	Rio Abajo State Forest
Schoepfia arenaria	No Common Name	No Tiene Nombre Comun	Plant	T	Rio Abajo State Forest
Solanum drymophilum	No Common Name	Erubia	Plant	E	Rio Abajo State Forest
Sterna dougallii	Roseate Tern	Palometa	Bird	T	Coastal Areas and Offshore Cays, Nesting
Tectaria estremerana	No Common Name	No Tiene Nombre Comun	Plant	E	Rio Abajo State Forest, Near Arecibo Observatory
Trichechus manatus manatus	Antillean Manatee	Manati Antillano	Mammal	E	Coastal Zones

Status
E=Endangered
T=Threatened
CH=Critical Habitat

BACK PREVIOUS

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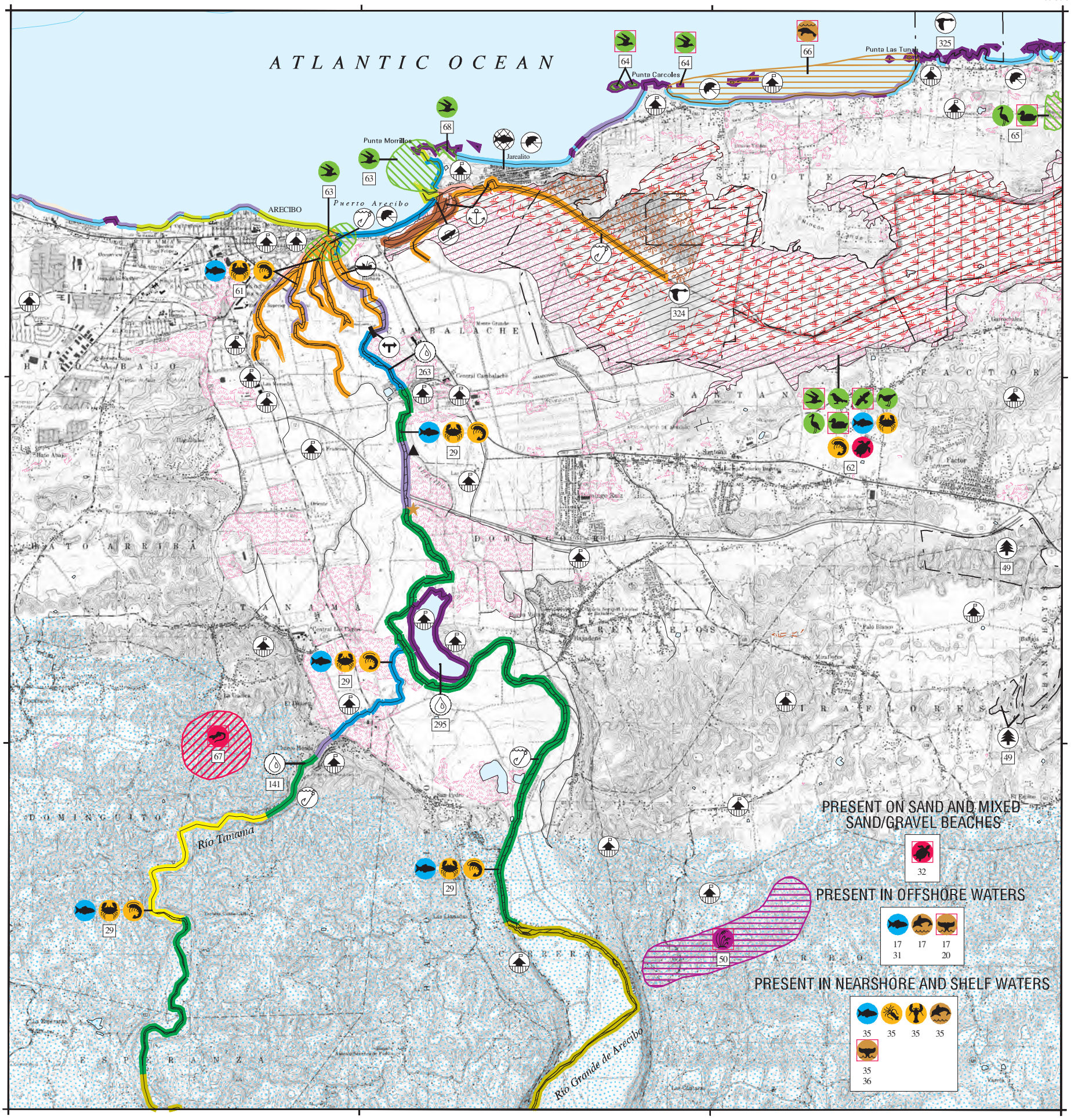
Appendix D

Environmental Sensitivity Index Map

ENVIRONMENTAL SENSITIVITY INDEX MAP



SHORELINE HABITATS (ESI)

- 1A EXPOSED ROCKY CLIFFS
- 1B EXPOSED, SOLID MAN–MADE STRUCTURES
- 2A EXPOSED WAVE–CUT PLATFORMS IN BEDROCK
- 2B SCARPS AND STEEP SLOPES IN MUDDY SEDIMENTS
- 3A FINE– TO MEDIUM–GRAINED SAND BEACHES
- 4 COARSE–GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
- 6A GRAVEL BEACHES
- 6B RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED ROCKY SHORES
- 8B SHELTERED, SOLID MAN–MADE STRUCTURES
- 9A SHELTERED TIDAL FLATS
- 9B SHELTERED VEGETATED LOW BANKS
- 10D MANGROVES
- SALT– AND BRACKISH–WATER MARSHES
- FRESHWATER MARSHES
- FRESHWATER SWAMPS
- FRESHWATER SCRUB/SHRUB

STREAM REACHES (RSI)

- 1 QUIET POOL; LOW–SENSITIVE BANKS
- 2 STRAIGHT CHANNEL WITH CURRENTS; LOW–SENSITIVE BANKS (MUD DOMINANT)
- 3 MEANDERING CHANNEL; SAND POINT BARS
- 4 MEANDERING CHANNEL; VEGETATED POINT BARS
- 5 RAPIDS OVER BEDROCK
- 6 MEANDERING CHANNEL; SAND AND GRAVEL POINT BARS
- 7 SPLIT CHANNEL WITH COARSE GRAVEL; SOME RAPIDS
- 8 SMALL FALLS; BOULDERS IN CHANNEL
- 9 LARGE FALLS; BOULDERS IN CHANNEL
- 10 CHANNELS WITH ASSOCIATED VULNERABLE WETLANDS
- KARST

N W E S

SCALE 1:55000

1 .5 0 1 KILOMETER

1 .5 0 1 MILE

Not For Navigation

Published: May 2000

Published at Seattle, Washington
National Oceanic and Atmospheric Administration
National Ocean Service
Office of Response and Restoration
Hazardous Materials Response Division

ARECIBO, P.R. (1982) PR-7

PUERTO RICO - ESIMAP 7

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S/F	T/E	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting
62	American coot			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	-
	American kestrel			HIGH	X	X	X	X						X	X	X	-
	American wigeon				X	X	X	X						X	X	X	-
	Black skimmer				X	X	X	X							X	X	-
	Blue-winged teal			HIGH	X	X	X	X						X	X	X	-
	Brown pelican	S/F	E/E	HIGH	X	X	X	X	X	X	X	X	X	X	X	X	-
	Caribbean coot	S	T	LOW	X	X	X	X	X	X	X	X	X	X	X	X	-
	Common moorhen			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	-
	Common snipe			HIGH	X	X	X	X						X	X	X	-
	Green-winged teal			LOW	X	X	X							X	X	X	-
	Lesser scaup			LOW	X	X	X								X	X	-
	Masked duck	S	T	LOW	X	X	X	X	X	X	X	X	X	X	X	X	-
	Merlin			LOW	X	X	X							X	X	X	-
	Northern pintail			LOW	X	X	X	X					X	X	X	X	-
	Osprey			HIGH	X	X	X	X					X	X	X	X	-
	Peregrine falcon	S	E	LOW	X	X	X	X						X	X	X	-
	Purple gallinule			LOW	X	X	X	X	X	X	X	X	X	X	X	X	-
	Red-tailed hawk			MEDIUM	X	X	X	X	X	X	X	X	X	X	X	X	-
	Ring-necked duck			LOW	X	X	X							X	X	X	-
	Ruddy duck	S	T	HIGH	X	X	X	X	X	X	X	X	X	X	X	X	-
	Shorebirds			HIGH	X	X	X	X	X			X	X	X	X	X	-
	Wading birds			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	-
	West Indian whistling-duck	S	T	HIGH	X	X	X	X	X	X	X	X	X	X	X	X	-
	White-cheeked pintail			MEDIUM	X	X	X	X	X	X	X	X	X	X	X	X	-
	White-crowned pigeon				X	X	X	X	X	X	X	X	X	X	X	X	-
63	Seabirds				X	X	X	X	X	X	X	X	X	X	X	X	-
64	Roseate tern	S/F	E/T					X	X	X	X	X	X				MAY-JUL
65	Caribbean coot	S	T		X	X	X	X	X	X	X	X	X	X	X	X	-
	Common moorhen				X	X	X	X	X	X	X	X	X	X	X	X	-
	Masked duck	S	T		X	X	X	X	X	X	X	X	X	X	X	X	-
	Pied-billed grebe				X	X	X	X	X	X	X	X	X	X	X	X	-
	Purple gallinule				X	X	X	X	X	X	X	X	X	X	X	X	-
	Ruddy duck	S	T		X	X	X	X	X	X	X	X	X	X	X	X	-
	Wading birds				X	X	X	X	X	X	X	X	X	X	X	X	-
68	Bridled tern							X	X	X	X	X	X				APR-JUL
	Brown noddy				X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG
	White-tailed tropicbird							X	X	X	X	X					MAR-JUL

FISH:

RAR#	Species	S/F	T/E	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
17	Pelagic fish				X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC
29	Native stream fish				X	X	X	X	X	X	X	X	X	X	X	X	APR-MAY AUG-NOV	APR-MAY AUG-NOV	APR-MAY AUG-NOV	JAN-DEC	JAN-DEC
31	Blue marlin			HIGH				X	X	X	X	X	X	X			MAY-NOV	MAY-NOV	MAY-NOV	-	MAY-NOV
35	Pelagic fish				X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC
	Reef fish				X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC
61	Native stream fish							X	X			X	X	X	X		-	-	APR-MAY AUG-NOV	-	-
	Nursery fish				X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	-
	Sirajo goby (seti)			HIGH										X			-	-	OCT-OCT	-	-
	Snook				X	X	X	X	X	X	X	X	X	X	X	X	APR-FEB	APR-FEB	JAN-DEC	JAN-DEC	JAN-DEC
	Tarpon				X	X	X	X	X	X	X	X	X	X	X	X	-	-	MAY-DEC	JAN-DEC	JAN-DEC
62	Native stream fish							X	X			X	X	X	X		-	-	APR-MAY AUG-NOV	-	-
	Nursery fish				X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	-
	Snook				X	X	X	X	X	X	X	X	X	X	X	X	APR-FEB	APR-FEB	JAN-DEC	JAN-DEC	JAN-DEC
	Tarpon				X	X	X	X	X	X	X	X	X	X	X	X	-	-	MAY-DEC	JAN-DEC	JAN-DEC
	Tilapia				X	X	X	X	X	X	X	X	X	X	X	X	DEC-JUL	DEC-JUL	DEC-JUL	JAN-DEC	JAN-DEC

PLANT:

RAR#	Species	S/F	T/E	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
50	Myrcia paganii	S/F	E/E		X	X	X	X	X	X	X	X	X	X	X	X

INVERTEBRATE:

RAR#	Species	S/F	T/E	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
29	Freshwater crab				X	X	X	X	X	X	X	X	X	X	X	X	APR-MAY AUG-NOV	APR-MAY AUG-NOV	-	JAN-DEC	JAN-DEC
	Native stream shrimp				X	X	X	X	X	X	X	X	X	X	X	X	APR-MAY AUG-NOV	APR-MAY AUG-NOV	APR-MAY AUG-NOV	JAN-DEC	JAN-DEC
35	Caribbean spiny lobster				X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC
	Octopus				X	X	X	X	X	X	X	X	X	X	X	X	DEC-MAR	DEC-APR	-	JAN-DEC	JAN-DEC
61	Blue land crab				X	X	X	X	X	X	X	X	X	X	X	X	JUL-AUG	JUL-AUG	JUL-SEP	JAN-DEC	JAN-DEC
	Native stream shrimp							X	X			X	X	X	X		-	-	APR-MAY AUG-NOV	-	-
62	Blue crabs				X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Blue land crab				X	X	X	X	X	X	X	X	X	X	X	X	JUL-AUG	JUL-AUG	JUL-SEP	JAN-DEC	JAN-DEC
	Native stream shrimp							X	X			X	X	X	X		-	-	APR-MAY AUG-NOV	-	-

MARINE MAMMAL:

RAR#	Species	S/F	T/E	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Mating	Calving
17	Dolphins				X	X	X	X	X	X	X	X	X	X	X	X	-	-
	Whales				X	X	X	X	X	X	X	X	X	X	X	X	-	-
20	Sperm whale	S/F	E/E	HIGH	X	X	X	X	X	X	X		X	X	X	X	-	-
35	Dolphins				X	X	X	X	X	X	X	X	X	X	X	X	-	-
	Whales				X	X	X	X	X	X	X	X	X	X	X	X	-	-
36	Humpback whale	S/F	E/E	VERY HIGH	X	X	X	X	X						X	X	-	-
66	West Indian manatee	S/F	E/E		X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC

REPTILE:

RAR#	Species	S/F	T/E	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
32	Green sea turtle	S/F	E/T		X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	-	JAN-DEC	JAN-DEC
	Hawksbill sea turtle	S/F	E/E		X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	-	JAN-DEC	JAN-DEC
	Leatherback sea turtle	S/F	E/E			X	X	X	X	X	X	X	X				FEB-JUN	APR-SEP	-	APR-SEP	FEB-JUN
62	Jicotea				X	X	X	X	X	X	X	X	X	X	X	X	APR-JUL	JUN-OCT	-	JAN-DEC	JAN-DEC
67	Puerto Rican boa	S/F	E/E		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC

HUMAN USE RESOURCES:

HUN#	Name	Owner/Manager	Contact	Phone
FOREST:				
49	BOSQUE CAMBALACHE	DRNA	DIVISION DE MANEJO BOSQUES ESTATALES	787/721-5495
WILDLIFE REFUGE:				
324	RESERVA NATURAL CANO TIBURONES	DRNA	DIVISION DE RESERVAS NATURALES Y REFUGIOS DE VIDA SILVESTRE	787/724-2816
325	RESERVA NATURAL CUEVA DEL INDIO	DRNA	DIVISION DE RESERVAS NATURALES Y REFUGIOS DE VIDA SILVESTRE	787/724-2816

WATER INTAKE:

HUN#	Name	Owner/Manager	Location	Phone
141	ARECIBO FILTER PLANT	PRASA	PR 636, KM 1.6	787/878-3195
263	POWER PLANT			
295	SUPER AQUEDUCT INTAKE			

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

PUERTO RICO

SHORELINE HABITATS (ESI)

- 1A EXPOSED ROCKY CLIFFS
- 1B EXPOSED, SOLID MAN-MADE STRUCTURES
- 2A EXPOSED WAVE-CUT PLATFORMS IN BEDROCK
- 2B SCARPS AND STEEP SLOPES IN MUDDY SEDIMENTS
- 3A FINE- TO MEDIUM-GRAINED SAND BEACHES
- 4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
- 6A GRAVEL BEACHES
- 6B RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED ROCKY SHORES
- 8B SHELTERED, SOLID MAN-MADE STRUCTURES
- 9A SHELTERED TIDAL FLATS
- 9B SHELTERED VEGETATED LOW BANKS
- 10D MANGROVES
- SALT- AND BRACKISH-WATER MARSHES
- FRESHWATER MARSHES
- FRESHWATER SWAMPS
- FRESHWATER SCRUB/SHRUB

STREAM REACHES (RSI)

- 1 QUIET POOL; LOW-SENSITIVE BANKS
- 2 STRAIGHT CHANNEL WITH CURRENTS; LOW-SENSITIVE BANKS (MUD DOMINANT)
- 3 MEANDERING CHANNEL; SAND POINT BARS
- 4 MEANDERING CHANNEL; VEGETATED POINT BARS
- 5 RAPIDS OVER BEDROCK
- 6 MEANDERING CHANNEL; SAND AND GRAVEL POINT BARS
- 7 SPLIT CHANNEL WITH COARSE GRAVEL; SOME RAPIDS
- 8 SMALL FALLS; BOULDERS IN CHANNEL
- 9 LARGE FALLS; BOULDERS IN CHANNEL
- 10 CHANNELS WITH ASSOCIATED VULNERABLE WETLANDS
- KARST

BENTHIC MARINE HABITATS

- CORAL REEF
- HARDBOTTOM
- SEAGRASS

HUMAN-USE FEATURES

- AIRPORT
- AQUACULTURE
- ARCHAEOLOGICAL/HISTORICAL SITE
- ARTISANAL/COMMERCIAL FISHING
- BOAT RAMP
- COAST GUARD
- BRIDGE
- MANAGEMENT AREA
- ESI/RSI BREAK
- SHELF BOUNDARY
- DAM
- DESIGNATED CRITICAL HABITAT
- DIVE SITE
- MARINA
- NATIONAL ESTUARINE RESEARCH RESERVE
- FISHING ASSOCIATION
- RSI COLLECTION POINT
- RSI FIELD STATION
- RSI HIGH-WATER LEAKAGE POINT
- FOREST
- RECREATIONAL BEACH
- RECREATIONAL FISHING
- NATIONAL PARK
- WATER INTAKE
- WILDLIFE REFUGE/ NATURAL RESERVE
- 123 HUMAN-USE NUMBER

SENSITIVE BIOLOGICAL RESOURCES

BIRD

- PASSERINE-LIKE BIRD
- RAPTOR
- SEABIRD
- SHOREBIRD
- WADING BIRD
- WATERFOWL

MARINE MAMMAL

- DOLPHIN
- MANATEE
- WHALE

TERRESTRIAL MAMMAL

- BAT

FISH

- FISH

INVERTEBRATE

- BIVALVE
- CRAB
- GASTROPOD
- LOBSTER
- OCTOPUS
- SHRIMP

REPTILE/AMPHIBIAN

- AMPHIBIAN/OTHER REPTILE
- TURTLE

PLANT

- RARE PLANT/HABITAT
- FLOATING AQUATIC VEGETATION
- SUBMERGED AQUATIC VEGETATION

MULTI-GROUP

- THREATENED/ENDANGERED
- 123 RAR NUMBER

Guidelines for Interpreting ESI Maps

To help users interpret the ESI maps and tabular data, we offer the following guidelines for use in addition to the map legend:

• Shoreline Habitats. The "shoreline," representing the boundary between land and water, is color-coded with the ESI classification. Most shoreline habitats are shown as a line, with no areal dimension. Where there is more than one shoreline type (e.g., a beach in front of a seawall), the colors for each habitat are shown, with the color for the landward habitat on the land side of the shoreline and the color for the seaward habitat on the water side. In areas where the intertidal zone is wide (e.g., wide tidal flats, wave-cut rocky platforms), the habitat from high to low water is filled with the ESI classification color. When data are available, the entire extent of wetlands are filled with colored patterns. The seaward edge of the wetland is color-coded with the ESI classification; the landward extent of the wetland is indicated by a dashed, colored line.

• Biological Resources. The distribution of biological resources is shown using many different conventions. The major convention is an icon associated with a point, line, or polygon that shows the species' areal distribution. The icon's reference number corresponds to a data table with details on species and life history. Biological resource data are organized into six major groups, each with a reference color: birds (green), mammals (brown), fish (blue), shellfish (orange), reptiles (red), and rare/endangered plants and special habitats (purple). These colors are used to fill hatched polygons and the icons. Each major group has subgroups with unique icons to visually indicate the type of organism or feature present. The icon or group of icons is usually located inside the polygon it represents; however, sometimes a line is connected between the icon and the polygon or point to make it easier to relate the two. Note that icons are used to indicate the types of resources present, but the actual data are the points and polygons. A red box around an icon indicates the presence of a species on the state or Federal list of threatened or endangered species.

The number listed below each icon refers to the first column of a data table for each map. The data tables, organized by group (birds, fish, etc.), include the following information: species name, status as threatened or endangered on state and Federal lists, concentration (specifically for each point or polygon), presence by month, and special life-history time periods. When a polygon contains multiple groups, the one number under the group of icons is listed under each group heading in the data tables. Where possible, the same number is used on multiple maps. For example, all bald eagle nests with the same seasonality could have the same number throughout the atlas, or the same assemblage of fish would have the same number wherever it occurred.

A data table has a separate listing for every unique combination of species, concentration, seasonality, life-history stage, and source. By looking at the monthly seasonality data in the table for each map, the species present at the time of concern can be easily identified. An 'X' or number is placed under each month in which any life stage of the species is present in the area represented by the point or polygon. Numbers are used typically for fish and shellfish where data on relative abundance are available. The final columns in the data tables include the months when reproductive activities occur or early life stages are present. Users should pay close attention to the data tables because they contain much of the information needed to identify the most sensitive resources at different times of the year.

Points, lines, and polygons on a map represent the distribution of the resources. Green points show bird nesting sites, including bald eagle nests and dense colonial nesters (e.g., heron rookeries and seabird nesting colonies). Animals and habitats are also represented as: 1) hatched polygons in the color for the animal group (e.g., green for birds); 2) black hatched polygons which contain multiple groups of resources (birds and fish in the same tidal channels); 3) solid lines (usually used for fish in small streams); or 4) in "common in ..." boxes. When showing the biological resource polygons would make the maps too difficult to read (usually when multiple polygons cover a large area), the polygons are not plotted and the presence of the resource is indicated by placing the icon in a box labeled "common in ..." The box contains an appropriate geographic reference. Different boxes can be used on the same map when, for example: "common in Winyah Bay" or "common in tidal creeks." The data for these resources are still fully present in the database but are not shown to make the maps more readable.

- Human-use Resources. Most of the human-use resources are point features indicated by a black-and-white icon. Managed lands, such as refuges and sanctuaries, have their boundaries shown as a dot-dash line with an icon and name placed inside. Where the feature is a known point location (e.g., a drinking water intake, boat ramp, marina), the exact location is shown as a small black dot and a line is drawn from it to the icon. Activities such as commercial and recreational fishing and areas such as recreational beaches are also indicated by an icon placed in the general area without any lines to points or polygons since the boundaries are not readily defined.

Some features, like historic and archaeological sites, are location-sensitive: the agency managing the resource believes the exact location should not be shown in order to protect the site. In these cases, the icon is placed in the general area of the resource, but the exact location is not shown.

ARCADIS

Appendix E

Modeled COPEC Concentrations in Environmental Media

	SLERA 2-1
X/Y	742002.13 / 2043651
COPCs	Max Soil Concentration mg/kg
Acenaphthene	1.30E-11
Acenaphthylene	1.04E-10
Anthracene	3.82E-09
Antimony	2.45E-04
Aroclor 1254	3.61E-08
Arsenic	1.97E-05
Benzo(a)anthracene	1.16E-08
Benzo(a)pyrene	9.73E-09
Benzo(b)fluoranthene	4.59E-10
Benzo(k)fluoranthene	3.46E-08
Beryllium	3.38E-05
Cadmium	5.87E-05
Chromium, hexavalent	3.84E-05
Chrysene	1.32E-08
Cobalt	7.84E-06
Copper	9.12E-05
Dibenz(a,h)anthracene	2.88E-08
Fluoranthene	2.75E-09
HeptaCDD, 1,2,3,4,6,7,8-	7.09E-09
HeptaCDF, 1,2,3,4,6,7,8-	5.15E-09
HeptaCDF, 1,2,3,4,7,8,9-	1.34E-09
HexaCDD, 1,2,3,4,7,8-	4.97E-10
HexaCDD, 1,2,3,6,7,8-	1.22E-09
HexaCDD, 1,2,3,7,8,9-	1.24E-09
HexaCDF, 1,2,3,4,7,8-	2.83E-09
HexaCDF, 1,2,3,6,7,8-	4.83E-09
HexaCDF, 1,2,3,7,8,9-	9.77E-10
HexaCDF, 2,3,4,6,7,8-	4.50E-09
Hydrogen chloride	5.86E-06
Hydrogen fluoride	1.68E-01
Indeno(1,2,3-cd) pyrene	1.58E-08
Lead	1.17E-02
Manganese	2.91E-04
Mercuric chloride	4.02E-04
Methyl mercury	7.83E-06
Methylnaphthalene, 2-	2.21E-11
Molybdenum	5.80E-05
Naphthalene	2.04E-11
Nickel	1.00E-04
OctaCDD, 1,2,3,4,6,7,8,9-	1.65E-08
OctaCDF, 1,2,3,4,6,7,8,9-	3.95E-09
PentaCDD, 1,2,3,7,8-	1.84E-09
PentaCDF, 1,2,3,7,8-	3.12E-09
PentaCDF, 2,3,4,7,8-	4.50E-09
Pyrene	9.55E-09
Selenium	3.58E-06
TetraCDD, 2,3,7,8-	3.51E-10
TetraCDF, 2,3,7,8-	4.90E-09
Tin	2.36E-03
Vanadium	2.75E-04
Zinc	1.61E-02

	SLERA 3-2
X/Y	740702.13 / 2042051
COPCs	Max Soil Concentration mg/kg
Acenaphthene	6.48E-11
Acenaphthylene	5.19E-10
Anthracene	1.49E-08
Antimony	1.07E-03
Aroclor 1254	1.56E-07
Arsenic	8.59E-05
Benzo(a)anthracene	4.95E-08
Benzo(a)pyrene	4.19E-08
Benzo(b)fluoranthene	2.02E-09
Benzo(k)fluoranthene	1.51E-07
Beryllium	1.47E-04
Cadmium	2.55E-04
Chromium, hexavalent	1.67E-04
Chrysene	5.46E-08
Cobalt	3.41E-05
Copper	3.97E-04
Dibenz(a,h)anthracene	1.25E-07
Fluoranthene	1.07E-08
HeptaCDD, 1,2,3,4,6,7,8-	3.09E-08
HeptaCDF, 1,2,3,4,6,7,8-	2.24E-08
HeptaCDF, 1,2,3,4,7,8,9-	5.83E-09
HexaCDD, 1,2,3,4,7,8-	2.16E-09
HexaCDD, 1,2,3,6,7,8-	5.30E-09
HexaCDD, 1,2,3,7,8,9-	5.42E-09
HexaCDF, 1,2,3,4,7,8-	1.23E-08
HexaCDF, 1,2,3,6,7,8-	2.10E-08
HexaCDF, 1,2,3,7,8,9-	4.25E-09
HexaCDF, 2,3,4,6,7,8-	1.96E-08
Hydrogen chloride	2.93E-05
Hydrogen fluoride	6.54E-01
Indeno(1,2,3-cd) pyrene	6.87E-08
Lead	5.07E-02
Manganese	1.26E-03
Mercuric chloride	1.76E-03
Methyl mercury	3.43E-05
Methylnaphthalene, 2-	1.10E-10
Molybdenum	2.52E-04
Naphthalene	1.02E-10
Nickel	4.37E-04
OctaCDD, 1,2,3,4,6,7,8,9-	7.17E-08
OctaCDF, 1,2,3,4,6,7,8,9-	1.72E-08
PentaCDD, 1,2,3,7,8-	8.02E-09
PentaCDF, 1,2,3,7,8-	1.36E-08
PentaCDF, 2,3,4,7,8-	1.96E-08
Pyrene	3.72E-08
Selenium	1.56E-05
TetraCDD, 2,3,7,8-	1.53E-09
TetraCDF, 2,3,7,8-	2.13E-08
Tin	1.03E-02
Vanadium	1.20E-03
Zinc	6.99E-02

	SLERA 4-2
X/Y	739802.13 / 2040851
COPCs	Max Soil Concentration mg/kg
Acenaphthene	2.59E-11
Acenaphthylene	2.08E-10
Anthracene	6.57E-09
Antimony	4.63E-04
Aroclor 1254	6.63E-08
Arsenic	3.73E-05
Benzo(a)anthracene	2.16E-08
Benzo(a)pyrene	1.82E-08
Benzo(b)fluoranthene	8.71E-10
Benzo(k)fluoranthene	6.59E-08
Beryllium	6.40E-05
Cadmium	1.11E-04
Chromium, hexavalent	7.26E-05
Chrysene	2.39E-08
Cobalt	1.48E-05
Copper	1.72E-04
Dibenz(a,h)anthracene	5.45E-08
Fluoranthene	4.72E-09
HeptaCDD, 1,2,3,4,6,7,8-	1.34E-08
HeptaCDF, 1,2,3,4,6,7,8-	9.74E-09
HeptaCDF, 1,2,3,4,7,8,9-	2.53E-09
HexaCDD, 1,2,3,4,7,8-	9.39E-10
HexaCDD, 1,2,3,6,7,8-	2.30E-09
HexaCDD, 1,2,3,7,8,9-	2.35E-09
HexaCDF, 1,2,3,4,7,8-	5.36E-09
HexaCDF, 1,2,3,6,7,8-	9.13E-09
HexaCDF, 1,2,3,7,8,9-	1.85E-09
HexaCDF, 2,3,4,6,7,8-	8.52E-09
Hydrogen chloride	1.17E-05
Hydrogen fluoride	2.89E-01
Indeno(1,2,3-cd) pyrene	2.99E-08
Lead	2.20E-02
Manganese	5.50E-04
Mercuric chloride	7.75E-04
Methyl mercury	1.51E-05
Methylnaphthalene, 2-	4.42E-11
Molybdenum	1.10E-04
Naphthalene	4.08E-11
Nickel	1.90E-04
OctaCDD, 1,2,3,4,6,7,8,9-	3.12E-08
OctaCDF, 1,2,3,4,6,7,8,9-	7.48E-09
PentaCDD, 1,2,3,7,8-	3.48E-09
PentaCDF, 1,2,3,7,8-	5.90E-09
PentaCDF, 2,3,4,7,8-	8.52E-09
Pyrene	1.64E-08
Selenium	6.78E-06
TetraCDD, 2,3,7,8-	6.64E-10
TetraCDF, 2,3,7,8-	9.27E-09
Tin	4.47E-03
Vanadium	5.20E-04
Zinc	3.04E-02

	SLERA 5-1
X/Y	738602.13 / 2037051
COPCs	Max Soil Concentration mg/kg
Acenaphthene	6.48E-12
Acenaphthylene	5.19E-11
Anthracene	1.11E-09
Antimony	3.93E-05
Aroclor 1254	1.04E-08
Arsenic	3.16E-06
Benzo(a)anthracene	2.20E-09
Benzo(a)pyrene	1.72E-09
Benzo(b)fluoranthene	8.45E-11
Benzo(k)fluoranthene	5.81E-09
Beryllium	5.42E-06
Cadmium	9.40E-06
Chromium, hexavalent	6.15E-06
Chrysene	2.90E-09
Cobalt	1.26E-06
Copper	1.46E-05
Dibenz(a,h)anthracene	4.71E-09
Fluoranthene	7.90E-10
HeptaCDD, 1,2,3,4,6,7,8-	1.16E-09
HeptaCDF, 1,2,3,4,6,7,8-	8.40E-10
HeptaCDF, 1,2,3,4,7,8,9-	2.20E-10
HexaCDD, 1,2,3,4,7,8-	8.12E-11
HexaCDD, 1,2,3,6,7,8-	1.99E-10
HexaCDD, 1,2,3,7,8,9-	2.03E-10
HexaCDF, 1,2,3,4,7,8-	4.65E-10
HexaCDF, 1,2,3,6,7,8-	7.92E-10
HexaCDF, 1,2,3,7,8,9-	1.61E-10
HexaCDF, 2,3,4,6,7,8-	7.39E-10
Hydrogen chloride	2.93E-06
Hydrogen fluoride	4.90E-02
Indeno(1,2,3-cd) pyrene	2.53E-09
Lead	1.87E-03
Manganese	4.66E-05
Mercuric chloride	9.70E-05
Methyl mercury	1.89E-06
Methylnaphthalene, 2-	1.10E-11
Molybdenum	9.30E-06
Naphthalene	1.02E-11
Nickel	1.61E-05
OctaCDD, 1,2,3,4,6,7,8,9-	2.69E-09
OctaCDF, 1,2,3,4,6,7,8,9-	6.45E-10
PentaCDD, 1,2,3,7,8-	3.05E-10
PentaCDF, 1,2,3,7,8-	5.28E-10
PentaCDF, 2,3,4,7,8-	7.57E-10
Pyrene	2.75E-09
Selenium	5.74E-07
TetraCDD, 2,3,7,8-	6.78E-11
TetraCDF, 2,3,7,8-	1.02E-09
Tin	3.79E-04
Vanadium	4.41E-05
Zinc	2.58E-03

	SLERA 6-1
X/Y	741602.13 / 2038551
COPCs	Max Soil Concentration mg/kg
Acenaphthene	0.00E+00
Acenaphthylene	0.00E+00
Anthracene	6.28E-10
Antimony	2.57E-05
Aroclor 1254	5.77E-09
Arsenic	2.07E-06
Benzo(a)anthracene	1.37E-09
Benzo(a)pyrene	1.08E-09
Benzo(b)fluoranthene	4.52E-11
Benzo(k)fluoranthene	3.72E-09
Beryllium	3.55E-06
Cadmium	6.15E-06
Chromium, hexavalent	4.02E-06
Chrysene	1.74E-09
Cobalt	8.22E-07
Copper	9.56E-06
Dibenz(a,h)anthracene	3.04E-09
Fluoranthene	4.47E-10
HeptaCDD, 1,2,3,4,6,7,8-	7.46E-10
HeptaCDF, 1,2,3,4,6,7,8-	5.42E-10
HeptaCDF, 1,2,3,4,7,8,9-	1.41E-10
HexaCDD, 1,2,3,4,7,8-	5.23E-11
HexaCDD, 1,2,3,6,7,8-	1.28E-10
HexaCDD, 1,2,3,7,8,9-	1.31E-10
HexaCDF, 1,2,3,4,7,8-	2.99E-10
HexaCDF, 1,2,3,6,7,8-	5.09E-10
HexaCDF, 1,2,3,7,8,9-	1.03E-10
HexaCDF, 2,3,4,6,7,8-	4.75E-10
Hydrogen chloride	0.00E+00
Hydrogen fluoride	2.77E-02
Indeno(1,2,3-cd) pyrene	1.66E-09
Lead	1.22E-03
Manganese	3.05E-05
Mercuric chloride	5.80E-05
Methyl mercury	1.13E-06
Methylnaphthalene, 2-	0.00E+00
Molybdenum	6.08E-06
Naphthalene	0.00E+00
Nickel	1.05E-05
OctaCDD, 1,2,3,4,6,7,8,9-	1.73E-09
OctaCDF, 1,2,3,4,6,7,8,9-	4.16E-10
PentaCDD, 1,2,3,7,8-	1.95E-10
PentaCDF, 1,2,3,7,8-	3.35E-10
PentaCDF, 2,3,4,7,8-	4.82E-10
Pyrene	1.56E-09
Selenium	3.76E-07
TetraCDD, 2,3,7,8-	4.09E-11
TetraCDF, 2,3,7,8-	6.00E-10
Tin	2.48E-04
Vanadium	2.89E-05
Zinc	1.68E-03

	SLERA 7-1
X/Y	749102.13 / 2040051
COPCs	Max Soil Concentration mg/kg
Acenaphthene	0.00E+00
Acenaphthylene	0.00E+00
Anthracene	8.04E-11
Antimony	2.12E-06
Aroclor 1254	2.15E-10
Arsenic	1.71E-07
Benzo(a)anthracene	1.38E-10
Benzo(a)pyrene	1.04E-10
Benzo(b)fluoranthene	4.06E-12
Benzo(k)fluoranthene	3.32E-10
Beryllium	2.93E-07
Cadmium	5.08E-07
Chromium, hexavalent	3.32E-07
Chrysene	1.93E-10
Cobalt	6.78E-08
Copper	7.89E-07
Dibenz(a,h)anthracene	2.73E-10
Fluoranthene	5.71E-11
HeptaCDD, 1,2,3,4,6,7,8-	6.70E-11
HeptaCDF, 1,2,3,4,6,7,8-	4.87E-11
HeptaCDF, 1,2,3,4,7,8,9-	1.28E-11
HexaCDD, 1,2,3,4,7,8-	4.71E-12
HexaCDD, 1,2,3,6,7,8-	1.16E-11
HexaCDD, 1,2,3,7,8,9-	1.18E-11
HexaCDF, 1,2,3,4,7,8-	2.70E-11
HexaCDF, 1,2,3,6,7,8-	4.60E-11
HexaCDF, 1,2,3,7,8,9-	9.37E-12
HexaCDF, 2,3,4,6,7,8-	4.30E-11
Hydrogen chloride	0.00E+00
Hydrogen fluoride	3.55E-03
Indeno(1,2,3-cd) pyrene	1.37E-10
Lead	1.01E-04
Manganese	2.51E-06
Mercuric chloride	5.39E-06
Methyl mercury	1.05E-07
Methylnaphthalene, 2-	0.00E+00
Molybdenum	5.02E-07
Naphthalene	0.00E+00
Nickel	8.68E-07
OctaCDD, 1,2,3,4,6,7,8,9-	1.56E-10
OctaCDF, 1,2,3,4,6,7,8,9-	3.74E-11
PentaCDD, 1,2,3,7,8-	1.78E-11
PentaCDF, 1,2,3,7,8-	3.11E-11
PentaCDF, 2,3,4,7,8-	4.44E-11
Pyrene	1.99E-10
Selenium	3.10E-08
TetraCDD, 2,3,7,8-	4.19E-12
TetraCDF, 2,3,7,8-	6.49E-11
Tin	2.05E-05
Vanadium	2.38E-06
Zinc	1.39E-04

	SLERA 8-3
X/Y	743902.13 / 2043251
COPCs	Max Soil Concentration mg/kg
Acenaphthene	0.00E+00
Acenaphthylene	0.00E+00
Anthracene	5.56E-10
Antimony	3.21E-05
Aroclor 1254	6.31E-09
Arsenic	2.58E-06
Benzo(a)anthracene	1.56E-09
Benzo(a)pyrene	1.29E-09
Benzo(b)fluoranthene	5.64E-11
Benzo(k)fluoranthene	4.53E-09
Beryllium	4.42E-06
Cadmium	7.67E-06
Chromium, hexavalent	5.02E-06
Chrysene	1.81E-09
Cobalt	1.03E-06
Copper	1.19E-05
Dibenz(a,h)anthracene	3.77E-09
Fluoranthene	3.99E-10
HeptaCDD, 1,2,3,4,6,7,8-	9.30E-10
HeptaCDF, 1,2,3,4,6,7,8-	6.75E-10
HeptaCDF, 1,2,3,4,7,8,9-	1.76E-10
HexaCDD, 1,2,3,4,7,8-	6.52E-11
HexaCDD, 1,2,3,6,7,8-	1.60E-10
HexaCDD, 1,2,3,7,8,9-	1.63E-10
HexaCDF, 1,2,3,4,7,8-	3.72E-10
HexaCDF, 1,2,3,6,7,8-	6.34E-10
HexaCDF, 1,2,3,7,8,9-	1.28E-10
HexaCDF, 2,3,4,6,7,8-	5.91E-10
Hydrogen chloride	0.00E+00
Hydrogen fluoride	2.45E-02
Indeno(1,2,3-cd) pyrene	2.07E-09
Lead	1.52E-03
Manganese	3.80E-05
Mercuric chloride	5.31E-05
Methyl mercury	1.03E-06
Methylnaphthalene, 2-	0.00E+00
Molybdenum	7.58E-06
Naphthalene	0.00E+00
Nickel	1.31E-05
OctaCDD, 1,2,3,4,6,7,8,9-	2.16E-09
OctaCDF, 1,2,3,4,6,7,8,9-	5.18E-10
PentaCDD, 1,2,3,7,8-	2.42E-10
PentaCDF, 1,2,3,7,8-	4.11E-10
PentaCDF, 2,3,4,7,8-	5.93E-10
Pyrene	1.39E-09
Selenium	4.69E-07
TetraCDD, 2,3,7,8-	4.72E-11
TetraCDF, 2,3,7,8-	6.67E-10
Tin	3.09E-04
Vanadium	3.60E-05
Zinc	2.10E-03

Receptor Name	COPC Name	CAS Number	Average Water Column Concentration [mg COPC/L water]	Average Concentration [mg COPC/kg sed]
SLERA 1	Antimony	7440-36-0	1.54E-08	6.90E-07
SLERA 1	Arsenic	7440-38-2	1.95E-09	5.66E-08
SLERA 1	Beryllium	7440-41-7	9.01E-11	6.95E-08
SLERA 1	Cadmium	7440-43-9	2.13E-09	1.59E-07
SLERA 1	Chromium, hexavalent	18540-29-9	5.85E-09	1.11E-07
SLERA 1	Cobalt	007440-48-4	4.91E-10	2.21E-08
SLERA 1	Copper	7440-50-8	7.43E-09	2.60E-07
SLERA 1	HeptaCDD, 1,2,3,4,6,7,8-	35822-46-9	1.00E-14	1.72E-10
SLERA 1	HeptaCDF, 1,2,3,4,6,7,8-	67562-39-4	7.21E-15	1.21E-10
SLERA 1	HeptaCDF, 1,2,3,4,7,8,9-	55673-89-7	1.87E-15	3.14E-11
SLERA 1	HexaCDD, 1,2,3,4,7,8-	39227-28-6	7.02E-16	1.19E-11
SLERA 1	HexaCDD, 1,2,3,6,7,8-	57653-85-7	1.71E-15	2.84E-11
SLERA 1	HexaCDD, 1,2,3,7,8,9-	19408-74-3	1.74E-15	2.90E-11
SLERA 1	HexaCDF, 1,2,3,4,7,8-	70648-26-9	3.90E-15	6.27E-11
SLERA 1	HexaCDF, 1,2,3,6,7,8-	57117-44-9	6.63E-15	1.07E-10
SLERA 1	HexaCDF, 1,2,3,7,8,9-	72918-21-9	1.34E-15	2.16E-11
SLERA 1	HexaCDF, 2,3,4,6,7,8-	60851-34-5	6.19E-15	9.96E-11
SLERA 1	Indeno(1,2,3-cd) pyrene	193-39-5	1.29E-13	1.95E-09
SLERA 1	Lead	7439-92-1	2.76E-08	2.41E-05
SLERA 1	Manganese	7439-96-5	1.23E-08	7.99E-07
SLERA 1	Molybdenum	0074939-98-7	8.39E-09	1.68E-07
SLERA 1	Nickel	7440-02-0	4.25E-09	2.76E-07
SLERA 1	OctaCDD, 1,2,3,4,6,7,8,9-	3268-87-9	2.34E-14	4.00E-10
SLERA 1	OctaCDF, 1,2,3,4,6,7,8,9-	39001-02-0	5.59E-15	9.56E-11
SLERA 1	PentaCDD, 1,2,3,7,8-	40321-76-4	2.47E-15	3.66E-11
SLERA 1	PentaCDF, 1,2,3,7,8-	57117-41-6	4.18E-15	6.45E-11
SLERA 1	PentaCDF, 2,3,4,7,8-	57117-31-4	5.93E-15	8.36E-11
SLERA 1	Selenium	7782-49-2	2.07E-09	1.03E-08
SLERA 1	TetraCDD, 2,3,7,8-	1746-01-6	4.68E-16	7.25E-12
SLERA 1	TetraCDF, 2,3,7,8-	51207-31-9	5.97E-15	6.61E-11
SLERA 1	Tin	007440-31-5	2.13E-08	0.00E+00
SLERA 1	Vanadium	7440-62-2	5.94E-10	5.76E-07
SLERA 1	Zinc	7440-66-6	7.16E-07	4.43E-05
Port Arecibo	Antimony	7440-36-0	3.52E-09	1.58E-07
Port Arecibo	Arsenic	7440-38-2	4.39E-10	1.27E-08
Port Arecibo	Beryllium	7440-41-7	4.62E-11	3.55E-08
Port Arecibo	Cadmium	7440-43-9	5.07E-10	3.79E-08
Port Arecibo	Chromium, hexavalent	18540-29-9	1.30E-09	2.47E-08
Port Arecibo	Cobalt	007440-48-4	1.13E-10	5.06E-09
Port Arecibo	Copper	7440-50-8	1.68E-09	5.88E-08
Port Arecibo	HeptaCDD, 1,2,3,4,6,7,8-	35822-46-9	1.97E-14	2.91E-10
Port Arecibo	HeptaCDF, 1,2,3,4,6,7,8-	67562-39-4	1.40E-14	2.02E-10
Port Arecibo	HeptaCDF, 1,2,3,4,7,8,9-	55673-89-7	3.74E-15	5.41E-11
Port Arecibo	HexaCDD, 1,2,3,4,7,8-	39227-28-6	1.40E-15	2.06E-11
Port Arecibo	HexaCDD, 1,2,3,6,7,8-	57653-85-7	3.34E-15	4.81E-11
Port Arecibo	HexaCDD, 1,2,3,7,8,9-	19408-74-3	3.37E-15	4.84E-11
Port Arecibo	HexaCDF, 1,2,3,4,7,8-	70648-26-9	7.47E-15	1.04E-10
Port Arecibo	HexaCDF, 1,2,3,6,7,8-	57117-44-9	1.30E-14	1.81E-10
Port Arecibo	HexaCDF, 1,2,3,7,8,9-	72918-21-9	2.66E-15	3.72E-11
Port Arecibo	HexaCDF, 2,3,4,6,7,8-	60851-34-5	1.20E-14	1.68E-10
Port Arecibo	Indeno(1,2,3-cd) pyrene	193-39-5	2.72E-13	3.59E-09

Port Arecibo	Lead	7439-92-1	1.52E-08	1.32E-05
Port Arecibo	Manganese	7439-96-5	2.90E-09	1.88E-07
Port Arecibo	Molybdenum	0074939-98-7	1.87E-09	3.73E-08
Port Arecibo	Nickel	7440-02-0	1.00E-09	6.49E-08
Port Arecibo	OctaCDD, 1,2,3,4,6,7,8,9-	3268-87-9	4.61E-14	6.80E-10
Port Arecibo	OctaCDF, 1,2,3,4,6,7,8,9-	39001-02-0	1.10E-14	1.62E-10
Port Arecibo	PentaCDD, 1,2,3,7,8-	40321-76-4	5.51E-15	7.18E-11
Port Arecibo	PentaCDF, 1,2,3,7,8-	57117-41-6	9.95E-15	1.34E-10
Port Arecibo	PentaCDF, 2,3,4,7,8-	57117-31-4	1.26E-14	1.57E-10
Port Arecibo	Selenium	7782-49-2	4.52E-10	2.26E-09
Port Arecibo	TetraCDD, 2,3,7,8-	1746-01-6	1.44E-15	1.95E-11
Port Arecibo	TetraCDF, 2,3,7,8-	51207-31-9	2.16E-14	2.17E-10
Port Arecibo	Tin	007440-31-5	6.43E-09	0.00E+00
Port Arecibo	Vanadium	7440-62-2	3.47E-10	3.35E-07
Port Arecibo	Zinc	7440-66-6	1.68E-07	1.04E-05
RGA Estuary	Antimony	7440-36-0	4.22E-09	1.90E-07
RGA Estuary	Arsenic	7440-38-2	5.34E-10	1.55E-08
RGA Estuary	Beryllium	7440-41-7	3.23E-11	2.48E-08
RGA Estuary	Cadmium	7440-43-9	5.91E-10	4.42E-08
RGA Estuary	Chromium, hexavalent	18540-29-9	1.60E-09	3.03E-08
RGA Estuary	Cobalt	007440-48-4	1.35E-10	6.07E-09
RGA Estuary	Copper	7440-50-8	2.04E-09	7.12E-08
RGA Estuary	HeptaCDD, 1,2,3,4,6,7,8-	35822-46-9	7.93E-15	1.17E-10
RGA Estuary	HeptaCDF, 1,2,3,4,6,7,8-	67562-39-4	5.66E-15	8.20E-11
RGA Estuary	HeptaCDF, 1,2,3,4,7,8,9-	55673-89-7	1.48E-15	2.14E-11
RGA Estuary	HexaCDD, 1,2,3,4,7,8-	39227-28-6	5.54E-16	8.13E-12
RGA Estuary	HexaCDD, 1,2,3,6,7,8-	57653-85-7	1.34E-15	1.93E-11
RGA Estuary	HexaCDD, 1,2,3,7,8,9-	19408-74-3	1.37E-15	1.97E-11
RGA Estuary	HexaCDF, 1,2,3,4,7,8-	70648-26-9	3.04E-15	4.25E-11
RGA Estuary	HexaCDF, 1,2,3,6,7,8-	57117-44-9	5.17E-15	7.22E-11
RGA Estuary	HexaCDF, 1,2,3,7,8,9-	72918-21-9	1.05E-15	1.46E-11
RGA Estuary	HexaCDF, 2,3,4,6,7,8-	60851-34-5	4.83E-15	6.74E-11
RGA Estuary	Indeno(1,2,3-cd) pyrene	193-39-5	1.09E-13	1.44E-09
RGA Estuary	Lead	7439-92-1	1.02E-08	8.90E-06
RGA Estuary	Manganese	7439-96-5	3.41E-09	2.21E-07
RGA Estuary	Molybdenum	0074939-98-7	2.29E-09	4.58E-08
RGA Estuary	Nickel	7440-02-0	1.18E-09	7.63E-08
RGA Estuary	OctaCDD, 1,2,3,4,6,7,8,9-	3268-87-9	1.84E-14	2.72E-10
RGA Estuary	OctaCDF, 1,2,3,4,6,7,8,9-	39001-02-0	4.41E-15	6.50E-11
RGA Estuary	PentaCDD, 1,2,3,7,8-	40321-76-4	1.89E-15	2.46E-11
RGA Estuary	PentaCDF, 1,2,3,7,8-	57117-41-6	3.29E-15	4.44E-11
RGA Estuary	PentaCDF, 2,3,4,7,8-	57117-31-4	4.50E-15	5.61E-11
RGA Estuary	Selenium	7782-49-2	5.62E-10	2.81E-09
RGA Estuary	TetraCDD, 2,3,7,8-	1746-01-6	4.05E-16	5.48E-12
RGA Estuary	TetraCDF, 2,3,7,8-	51207-31-9	4.90E-15	4.92E-11
RGA Estuary	Tin	007440-31-5	6.31E-09	0.00E+00
RGA Estuary	Vanadium	7440-62-2	2.26E-10	2.18E-07
RGA Estuary	Zinc	7440-66-6	1.98E-07	1.22E-05
Cienaga Tiburones	Antimony	7440-36-0	1.10E-03	4.95E-02
Cienaga Tiburones	Arsenic	7440-38-2	1.98E-04	5.73E-03
Cienaga Tiburones	Beryllium	7440-41-7	6.12E-07	4.80E-04
Cienaga Tiburones	Cadmium	7440-43-9	9.93E-05	7.44E-03
Cienaga Tiburones	Chromium, hexavalent	18540-29-9	8.01E-04	1.52E-02
Cienaga Tiburones	Cobalt	007440-48-4	3.52E-05	1.58E-03

Cienaga Tiburones	Copper	7440-50-8	6.51E-04	2.28E-02
Cienaga Tiburones	HeptaCDD, 1,2,3,4,6,7,8-	35822-46-9	1.43E-13	7.44E-09
Cienaga Tiburones	HeptaCDF, 1,2,3,4,6,7,8-	67562-39-4	4.45E-14	2.19E-09
Cienaga Tiburones	HeptaCDF, 1,2,3,4,7,8,9-	55673-89-7	1.20E-14	5.87E-10
Cienaga Tiburones	HexaCDD, 1,2,3,4,7,8-	39227-28-6	7.03E-15	3.62E-10
Cienaga Tiburones	HexaCDD, 1,2,3,6,7,8-	57653-85-7	6.18E-15	2.97E-10
Cienaga Tiburones	HexaCDD, 1,2,3,7,8,9-	19408-74-3	6.22E-15	2.99E-10
Cienaga Tiburones	HexaCDF, 1,2,3,4,7,8-	70648-26-9	1.13E-14	4.96E-10
Cienaga Tiburones	HexaCDF, 1,2,3,6,7,8-	57117-44-9	2.97E-14	1.30E-09
Cienaga Tiburones	HexaCDF, 1,2,3,7,8,9-	72918-21-9	4.69E-15	2.06E-10
Cienaga Tiburones	HexaCDF, 2,3,4,6,7,8-	60851-34-5	2.11E-14	9.26E-10
Cienaga Tiburones	Indeno(1,2,3-cd) pyrene	193-39-5	7.16E-12	2.66E-07
Cienaga Tiburones	Lead	7439-92-1	1.71E-04	1.52E-01
Cienaga Tiburones	Manganese	7439-96-5	6.50E-04	4.22E-02
Cienaga Tiburones	Molybdenum	0074939-98-7	1.11E-03	2.22E-02
Cienaga Tiburones	Nickel	7440-02-0	2.24E-04	1.46E-02
Cienaga Tiburones	OctaCDD, 1,2,3,4,6,7,8,9-	3268-87-9	6.06E-13	3.19E-08
Cienaga Tiburones	OctaCDF, 1,2,3,4,6,7,8,9-	39001-02-0	3.37E-13	1.76E-08
Cienaga Tiburones	PentaCDD, 1,2,3,7,8-	40321-76-4	7.62E-15	2.72E-10
Cienaga Tiburones	PentaCDF, 1,2,3,7,8-	57117-41-6	2.13E-14	8.43E-10
Cienaga Tiburones	PentaCDF, 2,3,4,7,8-	57117-31-4	1.94E-14	6.13E-10
Cienaga Tiburones	Selenium	7782-49-2	5.64E-04	2.82E-03
Cienaga Tiburones	TetraCDD, 2,3,7,8-	1746-01-6	1.08E-15	4.30E-11
Cienaga Tiburones	TetraCDF, 2,3,7,8-	51207-31-9	1.48E-14	2.90E-10
Cienaga Tiburones	Tin	007440-31-5	1.02E-02	0.00E+00
Cienaga Tiburones	Vanadium	7440-62-2	3.42E-06	3.39E-03
Cienaga Tiburones	Zinc	7440-66-6	3.93E-02	2.44E+00

Receptor Name	COPC Name	CAS Number	Average Water Column Concentration [mg COPC/L water]	Average SED Concentration [mg COPC/kg sed]
SLERA 1	Anthracene	120-12-7	1.99E-14	1.78E-11
SLERA 1	Benzo(a)anthracene	56-55-3	6.57E-14	5.14E-10
SLERA 1	Benzo(a)pyrene	50-32-8	8.81E-14	1.05E-09
SLERA 1	Chrysene	218-01-9	4.75E-14	3.94E-10
SLERA 1	Fluoranthene	206-44-0	1.49E-14	2.62E-11
SLERA 1	Hydrogen fluoride	7664-39-3	1.72E-06	2.56E-04
SLERA 1	Pyrene	129-00-0	1.37E-14	3.22E-11
Port Arecibo	Anthracene	120-12-7	6.64E-14	5.87E-11
Port Arecibo	Benzo(a)anthracene	56-55-3	2.65E-13	1.93E-09
Port Arecibo	Benzo(a)pyrene	50-32-8	2.92E-13	3.13E-09
Port Arecibo	Chrysene	218-01-9	1.16E-13	8.93E-10
Port Arecibo	Fluoranthene	206-44-0	6.10E-14	1.06E-10
Port Arecibo	Hydrogen fluoride	7664-39-3	8.37E-07	1.25E-04
Port Arecibo	Pyrene	129-00-0	5.28E-14	1.21E-10
RGA Estuary	Anthracene	120-12-7	2.49E-14	2.20E-11
RGA Estuary	Benzo(a)anthracene	56-55-3	6.12E-14	4.46E-10
RGA Estuary	Benzo(a)pyrene	50-32-8	7.91E-14	8.48E-10
RGA Estuary	Chrysene	218-01-9	4.81E-14	3.71E-10
RGA Estuary	Fluoranthene	206-44-0	1.93E-14	3.35E-11
RGA Estuary	Hydrogen fluoride	7664-39-3	8.33E-07	1.24E-04
RGA Estuary	Pyrene	129-00-0	1.66E-14	3.82E-11
Cienaga Tiburones	Anthracene	120-12-7	6.30E-14	5.82E-11
Cienaga Tiburones	Benzo(a)anthracene	56-55-3	2.62E-13	2.95E-09
Cienaga Tiburones	Benzo(a)pyrene	50-32-8	8.41E-13	1.89E-08
Cienaga Tiburones	Chrysene	218-01-9	7.53E-14	9.29E-10
Cienaga Tiburones	Fluoranthene	206-44-0	1.58E-13	2.99E-10
Cienaga Tiburones	Hydrogen fluoride	7664-39-3	8.93E-02	1.34E+01
Cienaga Tiburones	Pyrene	129-00-0	1.90E-13	4.93E-10

Receptor Name	COPC Name	CAS Number	Average Water Column Concentration [mg COPC/L water]	Average Concentration [mg COPC/kg sed]
SLERA 2-1	Benzo(k)fluoranthene	207-08-9	8.50E-14	1.02E-09
SLERA 2-1	Dibenz(a,h)anthracene	53-70-3	1.69E-13	2.34E-09
SLERA 2-1	Mercuric chloride	7487-94-7	1.98E-10	2.41E-06
SLERA 3-2	Benzo(k)fluoranthene	207-08-9	1.88E-13	2.03E-09
SLERA 3-2	Dibenz(a,h)anthracene	53-70-3	3.62E-13	4.44E-09
SLERA 3-2	Mercuric chloride	7487-94-7	5.24E-10	5.70E-06
SLERA 4-2	Benzo(k)fluoranthene	207-08-9	7.26E-14	7.83E-10
SLERA 4-2	Dibenz(a,h)anthracene	53-70-3	1.43E-13	1.76E-09
SLERA 4-2	Mercuric chloride	7487-94-7	2.18E-10	2.37E-06
SLERA 5-1	Benzo(k)fluoranthene	207-08-9	6.61E-12	1.50E-07
SLERA 5-1	Dibenz(a,h)anthracene	53-70-3	4.45E-11	1.36E-06
SLERA 5-1	Mercuric chloride	7487-94-7	9.29E-08	2.32E-03